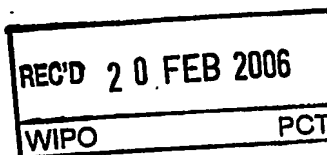


PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 0005211-0784	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/CA2004/001956	International filing date (<i>day/month/year</i>) 12 November 2004 (12-11-2004)	Priority date (<i>day/month/year</i>) 14 November 2003 (14-11-2003)	
International Patent Classification (IPC) or national classification and IPC IPC: G21C 17/017 (2006.01), F16L 55/00 (2006.01), G01N 29/04 (2006.01)			
Applicant HYDRO-QUEBEC ET AL			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>2</u> sheets, as follows:</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="padding-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. 1 and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input checked="" type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 19 July 2005 (19-07-2005)		Date of completion of this report 14 February 2006 (14-02-2006)	
Name and mailing address of the IPEA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476		Authorized officer Louis-Pierre Riel (819) 997-0232	

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CA2004/001956

Box No. I Basis of the report

1. With regard to the language, this report is based on:
- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- ☒ pages 1, 3, 5, 8 and 9 as originally filed/furnished
- ☒ pages* 2, 2a, 4, 6 and 7 received by this Authority on 7 December 2005
- ☐ pages* received by this Authority on _____
- ☒ the claims:
- ☐ claims as originally filed/furnished
- ☐ claims* as amended (together with any statement) under Article 19
- ☒ claims* 1 to 16 received by this Authority on 7 December 2005
- ☐ claims* received by this Authority on _____
- ☒ the drawings:
- ☒ pages 1/8 to 8/8 as originally filed/furnished
- ☐ pages* received by this Authority on _____
- ☐ pages* received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☒ the description, pages 2, 4, 6, 7 as originally filed
- ☒ the claims, Nos. 1 to 18 as originally filed
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

This opinion has been established as if no priority had been claimed for claims 3 to 6, 11, 13 and 16, as some elements defined in these claims cannot be found in the priority document, namely:

Claim 1: This claim refers to elongated grooves (36 in the description) and pins (34) which are not described in the priority document nor can it be interpreted clearly from the drawings. A drawing for the cracking bracelet seems to suggest a groove but nothing is visible when the sensor modules are in place.

Claim 2: This claim depends on claim 1, and again refers to grooves and pins which are not described or visible in the priority document.

Claim 3: This claim depends on claim 2. In addition the connecting rod which has extensions that are essentially the pins to engage the grooves are not described or visible in the priority document.

Claim 4: This claim depends on claim 1.

Claim 9: This claim refers to a return spring element extending between each wedge of the two wedges and the ultrasonic transducer which is not described in the priority document nor can it be interpreted clearly from the drawings. Reference is made to figure 6 of the priority document, the first drawing of the cracking bracelet and the drawing "angular scan for axial cracks" of the orbital scanner which are the most closely related drawing showing the transducer.

Claim 11: This claim refers to the first driving means having connected by connecting rods. Such as for claim 3, these connecting rods are not visible and no figure can suggest this type of construction.

Claim 14: In the only drawing of the priority document showing the receiving surface (orbital scanner, first page of drawings - the surface are not visible on figure 8), there is an extension of the surface in the radial direction, but no provision of an extension on the front side of the slidable member.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1 to 16</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>1 to 16</u>	YES
	Claims	<u>None</u>	NO
Industrial applicability (IA)	Claims	<u>1 to 16</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations (Rule 70.7)

Citation from the International Search Report:

D2: WO 01/96808 A2 20 December 2001 (20-12-2001) Lavoie

New citations:

D5: US-4,389,894 A 28 June 1983 (28-06-1983) Kajiyama

Fig. 1; column 2, lines 20 to 54

Novelty (N)**Claims 1 to 16 comply with Article 33(2) of the PCT.**

Claim 1: The closest prior art D2 describes a bracelet for moving sensors (of the ultrasonic type, pages 5 and 6) along a pipe, comprising a frame, supports and sensors. The sensors are distributed on the bracelet, so as to partially surround the pipe to be measured. The bracelet is provided with wheels that effect longitudinal motion of the sensor along the pipe (page 10). However, there is no provision of a mechanism to move the sensors peripherally in D2.

Claims 2 to 16: As all these claims depend on claim 1, the same reasoning applies.

Inventive Step (IS)**Claims 1 to 16 comply with Article 33(3) of the PCT.**

The closest combination of prior art is D2 in view of D5. Regarding claim 1, D2 describes a bracelet for moving ultrasonic sensors along a pipe. The frame of this bracelet is essentially the same frame as contemplated in the embodiment illustrated by figures 1 and 2 of the present application. In D2, the displacement of the frame along the axial direction is accomplished by using wheels disposed around the frame in about the same positions as in the present device. D2 also provides for driving means to displace the frame (page 11, line 33). As current claim 1 only defines the second driving means as "for controllably driving the wheels in rotation and thereby displacing the frame", such general statement reads in the solution described in D2. Biasing means are contemplated (page 3) for urging the sensors against the pipe.

(continued in Supplemental Box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V - Inventive Step (IS)**

Claims 1 to 16 comply with Article 33(3) of the PCT (continued).

D2 does not provide for a mechanism to move the sensors peripherally nor for the solution of the pin and cooperating groove. The solution of a mechanism to move the sensor is shown in numerous patent documents in U.S. classes 73/622 and 73/637, D5 being an example of such a system which could be adaptable with the current device resulting in an embodiment similar to what is illustrated by figures 5 to 9 of the current application. D5 describes a cylindrical guide rail for an ultrasonic flaw detector using a rack (22) and pinion (24) system. The gear rack is mounted on cylindrical guide rail. The guide rail is concentrically mounted over the pipe to be inspected. The search head of the detector (28) can be displaced circumferentially with a drive using the rack and pinion. The search head is secured at one end by a manipulator arm (30) and bias on place by a compensating guide arm (32) with a roller (34).

However, the solution of the pin and cooperating groove is not described in D5, as the last discloses a more sophisticated system without these elements.

Claims 2 to 16: As all these claims depend on claim 1, the same reasoning applies.

Industrial Application (IA)

Claims 1 to 16 are industrially applicable and there fore comply with Article 33(4) of the PCT.